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Attorney Docket No. 23435-004

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In re Application of:

Randall B. METCALF

Serial No.: 08/749,766

Filed: November 20, 1996

Group Art Unit: 2644

Examiner: D. SWERDLOW

For: SOUND SYSTEM AND METHOD FOR CAPTURING AND REPRODUCING
SOUNDS ORIGINATING FROM A PLURALITY OF SOUND SOURCES

APPEAL BRIEF

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I. PRELIMINARY STATEMENT

After countless searches and numerous rejections by the Patent Office, each of which has been withdrawn by an Examiner or reversed by the Board^{1/}, it is remarkable that the primary reference now relied on is based on a 1920's turntable system. If the Patent Office deemed this relevant art, there is no reason that this could not have been cited years ago. As it has done consistently throughout the interminable prosecution of this application, the Patent Office has failed to appreciate the ground breaking significance of the invention as a whole, ignored specific recitations of the claims and improperly picked and chosen isolated elements of non-analogous references, with no proper suggestion to combine these disparate references. This revolutionary invention has the potential to be among the most significant advances to the audio industry this century. Yet, the "best" reference that the Examiner can now find is nearly a century old, relates to antiquated technology and is quite different than the claimed invention.

The remaining references are so far afield that they do not even constitute analogous art and therefore can not legally be relied upon. Even if they permissibly could be considered, the alleged basis for cobbling together the string of references now relied on is strained, illogical and legally improper. Yet, even if one were to ignore clear legal precedent and combine this string of disparate references, the combination still fails to disclose all of the claim elements.

It is clear that current rejections impermissibly are based on hindsight and fail to consider the invention as a whole. The rejection is based on the proscribed approach of pointing to various claim elements in diverse references and alleging that each of the elements are found somewhere in the prior art, without regard to the significance of the

^{1/} This is the second time this application has been sent to the Board of Appeals on obviousness grounds. Last time, the Board squarely reversed the Examiner's obviousness rejection in its entirety. The Board held that there was clearly no proper suggestion to combine the disparate references upon which the final rejection was based. Instead of allowing the application after this decision, a new Examiner has made another obviousness rejection based on a new combination of disparate references. The continued, improper refusal to grant a patent on this invention is particularly troubling in light of the ever-growing length of pendency, due to the piecemeal prosecution and iterative searching for prior art by the Patent Office.

specific combination of elements claimed as a whole and the portions of the references that teach away from the invention. Additionally, many of the references do not even disclose what the Examiner alleges they do. Therefore, even if these disparate references are combined, the combination still fails to disclose each claim element. In short, the prior art relied on is woefully inadequate to provide a proper legal basis for denying a patent on the pending claims.

This case should have been allowed after the first decision on appeal reversing then applicable rejection. It should never even reach the Board a second time. Yet, to the extent it does, all of the rejections should again be squarely reversed and this case should finally be issued.

II. REAL PARTY INTEREST

The real party in interest is Mr. Randall B. Metcalf, the named inventor of the above-referenced application.

III. RELATED APPEALS AND INTERFERENCES

This appeal is related to the prior appeal in this application, in which the Board reversed all grounds of rejection.

IV. STATUS OF CLAIMS

Claims 1, 29, 30, and 56-109 are pending in the application. Claims 2-28 and 31-55 have been cancelled, without prejudice.

Each of the rejections of each of claims 1, 29, 30, and 56-109 is appealed.

V. STATUS OF AMENDMENTS

An amendment to claims 65, 67, 72, 79, 89, 91, 92, 108, and 109 is submitted herewith solely to address the objection to claim 79 and to address various 35 U.S.C. § 112 issues in order to place the claims in better form for appeal. Appendix A provides a clean copy of the proposed amended claims. Appendix A1 provides a listing of the

claims as currently written, without the proposed amendments. Entry of the proposed amendment is requested.

VI. SUMMARY OF INVENTION

A. The Background Technology

Sound recording and reproduction systems for multiple sound sources are generally known. There are numerous problems encountered when trying to reproduce sound produced by a plurality of sound sources. A particular problem is referred to as sound staging, which many attempt to correct by using spatial separation techniques. Sound staging is the phenomenon that enables a listener to perceive the apparent physical size and location of a musical presentation. The sound stage includes the physical properties of depth and width. These properties contribute to the ability to listen to an orchestra, for example, and be able to discern the relative position of different instruments (specification, page 3, lines 17-25).

Many recording systems fail to precisely capture the sound staging effect when recording a plurality of sound sources. One reason for this is the methodology used by many systems. For example, such systems typically use one or more microphones to receive sound waves produced by a plurality of sound sources (e.g., drums, guitar, vocals, etc.) and convert the sound waves to electrical audio signals. When one microphone is used, the sound waves from each of the sound sources are typically mixed (i.e., superimposed on one another) to form a composite signal. When a plurality of microphones are used (e.g., left and right channel), the plurality of audio signals are still mixed (i.e. superimposed on one another) to form a composite signal, but spatially separated. Mixing the signals, however, limits the ability to recreate the sound staging of the plurality of sound sources. Many other problems are caused by mixing as well (specification at page 3, line 25 to page 4, line 13).

Another problem caused by mixing occurs when a mixed audio signal is sent to a loudspeaker. A phenomenon known as loudspeaker masking precludes the precise recreation of original sounds when they have been mixed. A particular type of masking can occur when a loudspeaker cone is driven by a composite signal as opposed to an

audio signal corresponding to a single sound source (specification at page 5, line 24 to page 6, line 8).

Another problem with mixing sounds or audio signals and then amplifying the composite signal is intermodulation distortion. Intermodulation distortion refers to the fact that when a signal of two or more frequencies is input to an amplifier, the amplifier will output the two frequencies plus the sum and differences of these frequencies. (Specification at page 6, lines 9-15).

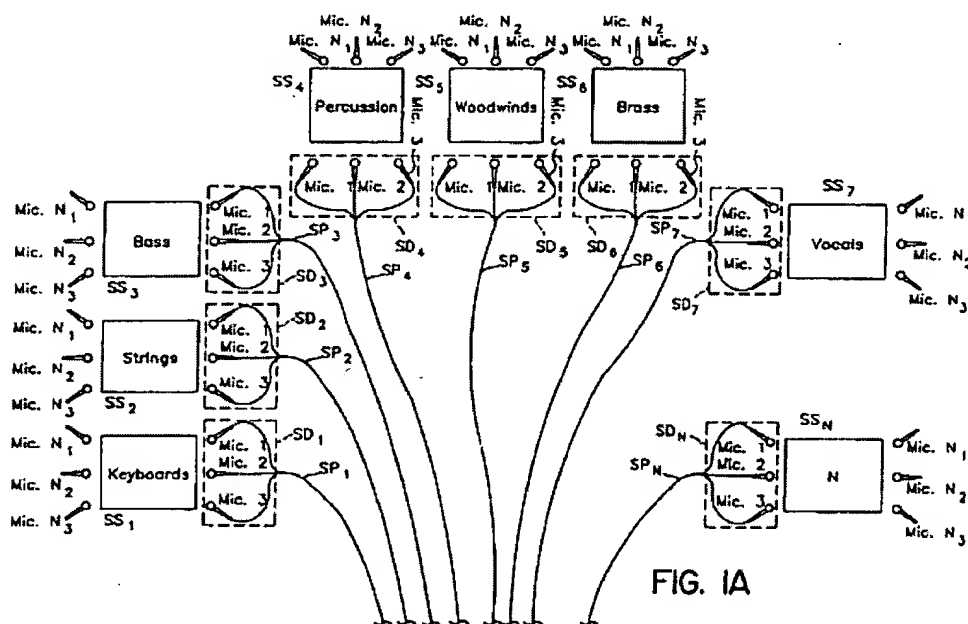
Thus, spatial separation techniques, (those used by spatially arranging a plurality of microphones around a group of sound sources) mix the plurality of sounds and their associated audio signals, as the sounds are superimposed on one another. This limits the ability to recreate the sound staging of the original sounds and causes other problems. Mixing sounds also inhibits sound reproduction, as it requires composite audio signals to be played over the same loudspeakers. The effects of masking and the intermodulation distortion associated with mixed audio signal reproduction can inhibit precise reproduction of the original sounds.

Additionally, the mixing of audio signals precludes effective individual control over playback of individual sounds. Moreover, there is a need for equipment (e.g., amplifiers and loudspeakers) to be able to handle broad range of signals.

B. The Present Invention

Appellant's invention overcomes these and other drawbacks by providing methods and apparatus for *separately* capturing sound produced by a plurality of sound sources (e.g., separate instruments) and separately converting the sounds to separate audio signals without the need to mix the sounds or audio signals. These separate audio signals may be separately stored or (e.g., in the case of reproducing live music) reproduced without storing. Another important aspect of the invention is the provision for and ability to use individual and customized loudspeaker and/or amplifiers in each signal path and to dynamically and automatically enable simultaneous control over these elements.

According to an embodiment of the invention, the system comprises a plurality of sound sources SS1-SSN for producing a plurality of sounds, and a plurality of sound detectors SD1-SDN, such as microphones, for capturing the sound. Figure 1A is shown below for the Board's convenience. Figure 1A represents a portion of Figure 1 of the present application.



As can be seen in the Figure, each sound is converted into a separate audio signal and then conveyed over separate signal paths SP1-SPN to be recorded at, for example, recording medium 40, such as an optical disk or a tape (specification page 11, lines 11-18; see Figure 1B below; Figures 1A and 1B make up Figure 1 of the present application).

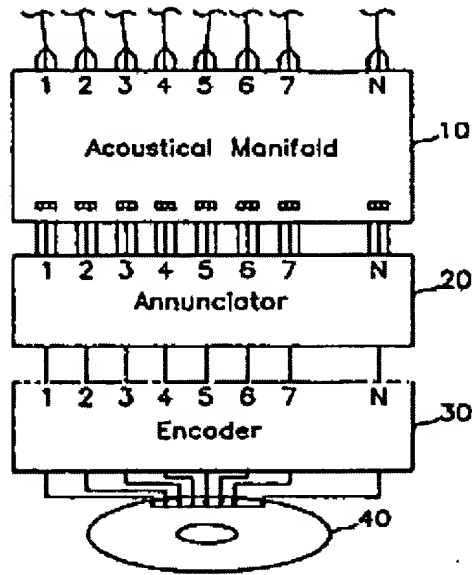


FIG. 1B

When recording is used, the audio signals *may* be provided to an acoustical manifold 10 and/or an annunciator 20 before being provided to an encoder 30.^{2/}

The audio signals also may be directly transmitted to a sound reproduction system (page 11, lines 18-21). Alternatively, the audio signals recorded on recording medium 40 may be used by the sound reproduction system to reproduce the sounds (page 13, lines 1-4). As shown in Figures 2A and 2B below (Figures 2A and 2B make up Figure 2 of the present application, a reader/decoder 50 reads the stored audio signals from the storage medium 40.^{3/}

^{2/} The acoustical manifold 10 serves as a switching mechanism to distribute the audio signals to a particular signal path (specification at page 12, lines 8-10). The annunciator 20 enables flexibility in handling different numbers of audio signals and signal paths (page 12, lines 10-11), but these are not required. One or more annunciators may be used and may be located as desired in the system.

^{3/} The separate audio signals may be supplied to an annunciator module 60, to output the appropriate number of audio signals. One or more annunciators can be located at various points in the system.

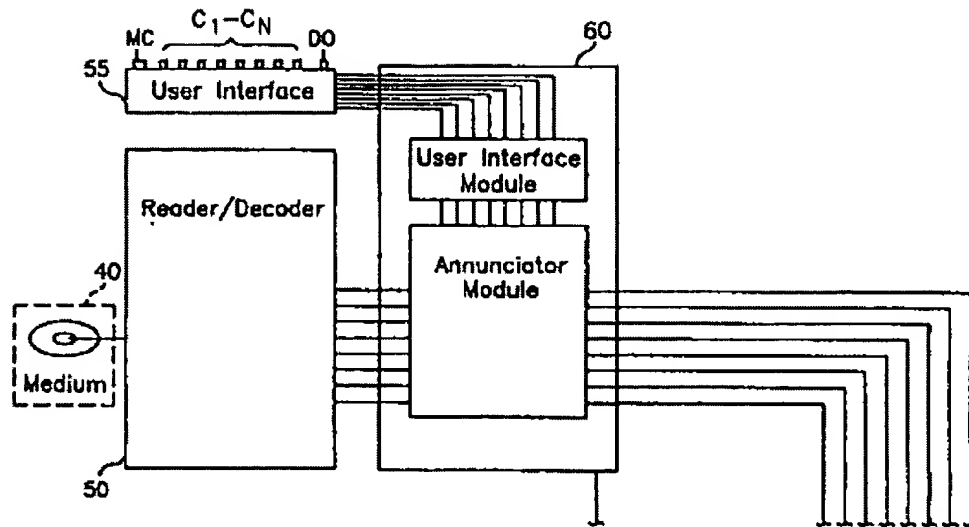


FIG. 2A

According to one aspect of at least some claims, the reproduction portion of the system comprises an amplification network and a loudspeaker network. The amplification network 70, shown for example in Fig. 2B below, may comprise a plurality of amplifier systems (AS1-ASN) that separately amplify each of the audio signals (page 13, lines 24-26). The amplified audio signals are sent to loudspeaker network 80, which comprises a plurality of loudspeaker systems LS1-LSN (page 13, lines 28-30). Each loudspeaker system separately reproduces sounds based on the separate audio signals on its signal path. Each amplifier system and loudspeaker system may be customized for the specific type of sounds produced by the sound source or groups of sound sources associated with the signal path (page 13, lines 5-7). Additionally, the dynamic controller may control each of the loudspeaker and amplifier elements automatically and simultaneously to control individual elements thereof. According to one embodiment, the dynamic controller may control individual elements of the loudspeaker network and/or amplification network in a variety of ways and for a variety of purposes. Significantly, as recited in some of the claims, simultaneous control over individual elements enables micro control of the reproduced sounds relative to one another.

Additionally, all of the elements can be controlled simultaneously to provide macro control.

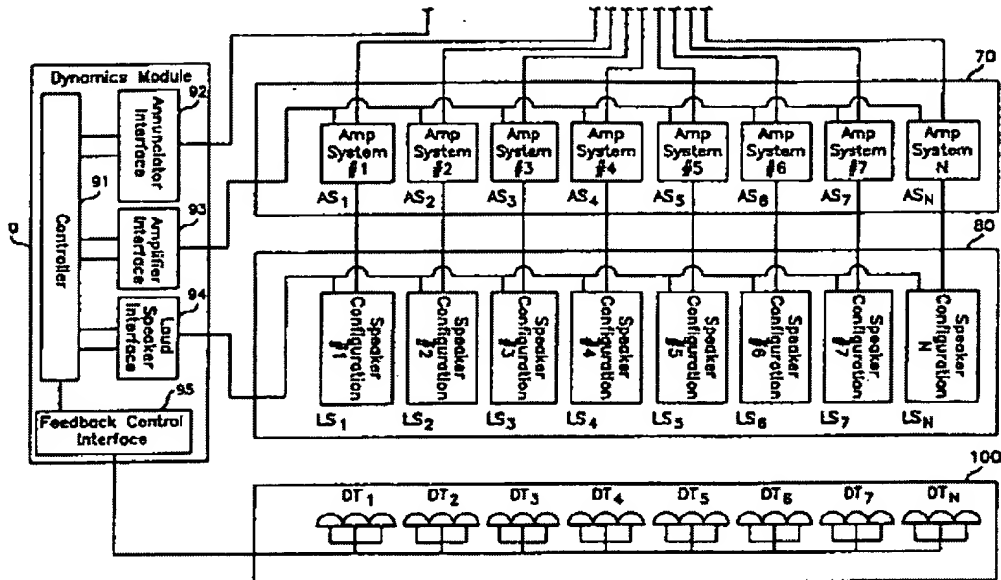


FIG. 2B

Accordingly, the present invention avoids problems that are encountered when audio signals are mixed and enables a level of control and customization not heretofore recognized.

According to some of the claimed embodiments, it is particularly important to consider the claimed invention as a whole and take into account that the sounds are separately captured, the audio signals are not mixed anywhere in the system (unless specifically desired) that the separate signals are provided to separate amplifier and loudspeaker systems that can be customized for the particular characteristics of the sounds to be reproduced on that signal path and a dynamic controller enables simultaneous automatic control over the amplifier and loudspeaker network and individual elements thereof. Considered as a whole, this combination of features is unparalleled, and none of the prior art comes close to this overall system concept or the advantages of such a system as a whole. It is this end-to-end solution that is important

for at least some of the claims. Yet, as detailed below, in many cases, the Examiner raises bits and pieces of seemingly similar (though not really) components from analogous references. It is always important and legally required to consider the claimed invention as a whole. It is particularly important to do so here. Yet, this has not been done by the Examiner.

VII. ISSUES

The issues on appeal are as follows:

- (i) Whether claims 1, 29, 30, 108 and 109 are patentable under 35 U.S.C. § 103(a) over U.S. Patent No. 1,765,735 to Phinney ("Phinney") in view of U.S. Patent No. 5,740,260 to Odom ("Odom");
- (ii) Whether claims 56 through 63, 69, 82 through 89 and 95 are patentable under 35 U.S.C. § 103(a) over Phinney in view of Odom and further in view of U.S. Patent No. 3,540,545 to Herleman et al ("Herleman");
- (iii) Whether claims 67, 68, 70 through 77, 93, 94, and 96 through 103 are patentable under 35 U.S.C. § 103(a) over Phinney in view of Odom and further in view of U.S. Patent No. 4,442,048 to Edwards ("Edwards");
- (iv) Whether claims 80 and 106 are patentable under 35 U.S.C. § 103(a) over Phinney in view of Odom and further in view Edwards and further in view of Herleman;
- (v) Whether claims 64, 65, 81, 90, 91, and 107 are patentable under 35 U.S.C. § 103(a) over Phinney in view of Odom and further in view of U.S. Patent No. 3,158,695 to Camras;
- (vi) Whether claims 66 and 92 are patentable under 35 U.S.C. § 103(a) over Phinney in view of Odom and further in view of U.S. Patent No. 4,408,095 to Ariga et al ("Ariga"); and

(vii) Whether claims 78, 79, 104, and 105 are patentable under 35 U.S.C. § 103(a) over Phinney in view of Odom and further in view of U.S. Patent No. 4,481,660 to de Koning (“de Koning”).^{4/}

Sub-issues include whether each of the individual claims are separately patentable as indicated in the “Grouping of Claims” section immediately below.

VIII. GROUPING OF CLAIMS

None of the claims stand or fall together. Each claim is separately patentable. The reasons why each claim is separately patentable are presented in the arguments below.

IX. ARGUMENT

All claims are allowable over the prior art because the Final Rejection dated May 10, 2004 (“Final Rejection”) fails to set forth a *prima facie* case of obviousness for any claim. The Final Rejection: i) fails to show that the applied references, even if combined, teach or suggest all claim elements; ii) improperly relies on non-analogous art; iii) fails to provide a legal basis to modify or combine the cited references; iv) fails to consider the claimed invention as a whole; and v) impermissibly relies on hindsight.

A. Some Deficiencies in the References Relied Upon in the Final Rejection

The lynchpin of *each* of the prior art rejections is Phinney in combination with Odom. For at least the reason that these references do not even disclose what the

^{4/} The objection to claim 79 and the Section 112 rejection of claims 67, 72 and 89 should be moot in light of the proposed amendment. To the extent they are not, Appellant appeals those rejections as being improper.

Examiner alleges they disclose, and thus do not disclose all of the claim elements, each of the rejections are legally insufficient and must be reversed.^{5/}

For example, even the Examiner acknowledges that Phinney is missing several important elements of claim 1. The Examiner admits that Phinney does not disclose “a plurality of amplifier means under common control” and “a dynamic control means for individually controlling each of the amplifier means to enable automatic simultaneous control over the amplifier means.” As discussed below, Odom does not remedy these admitted deficiencies. However, Phinney is missing claim elements in addition to those admittedly missing by the Examiner.

Because Phinney and Odom are key to each of the rejections, general deficiencies with those references will be addressed immediately below. Then, a specific analysis relevant to each claim is provided below.

1. U.S. Patent No. 1,765,735 to Phinney

a. Phinney Relates to Capturing Sounds from Sections of an Orchestra, Not Individual Instruments.

In Phinney, the sound sources are **groups** of instruments that make up a section of an orchestra, not individual sound sources as claimed. For this element, the Examiner relies on Fig. 1 of Phinney and acknowledges that “Phinney discloses ‘the use of sound recording devices, each corresponding to **a particular section of a concerted performance**, whereby the complete characteristics **of each section** may be separately recorded and controlled...’” Then, without support, and in contradiction of this admitted description, the Examiner erroneously alleges that Phinney discloses “a sound system for capturing and reproducing sounds produced by a plurality of sound sources comprising: means for **separately receiving sounds produced by the plurality of sound sources** (Fig.1, reference 1).”

^{5/} However, as detailed below, the Final Rejection suffers from numerous other legal deficiencies as well. For example, the Examiner fails to set forth a legally proper suggestion to combine these references and Odom is not even analogous art. Other arguments are set forth below.

As is clear from this and other passages in Phinney, Phinney records sounds from *groups* of instruments from sections of an orchestra, which inherently involves mixing of sounds from different sound sources. Once these sounds are mixed, Phinney is unable (nor does he disclose the ability) to *separately* convert the sounds (from individual sound sources) to a plurality of audio signals, without mixing. Concomitantly, Phinney does not disclose separately storing the separate audio signals (from individual sound sources), or separately amplifying or reproducing the sounds from individual sound sources. Rather all of the audio signals correspond to sounds from groups of sound sources.

In contrast, various aspects of the invention relate to enabling the capture of sounds from individual sound sources. This enables individual recording, control and playback of each individual sound source throughout the system. And with respect to some of the claims, this also enables customizing loudspeakers and/or amplifiers for a given sound source (e.g., an individual instrument) and dynamically, simultaneously controlling these elements.

Contrary to the Examiner's unsupported assertion, Phinney's recording of sections of an orchestra does not constitute "means for *separately* receiving sounds produced by the plurality of sound sources." Neither Odom nor any one of the other references is even alleged by the Examiner to remedy this deficiency. This fact alone causes each of the rejections to fail.

b. Phinney Fails to Disclose an Amplification Network or a Loudspeaker Network

Numerous other independent reasons cause each of the rejections to fail as well. For example, contrary to the Examiner's unsupported assertion, Phinney discloses neither an "amplification network" nor a "loudspeaker network." In fact, the Examiner completely ignores these explicit recitations. Rather, the Examiner apparently attempts to impermissibly reinterpret the claims to recite simply an amplifier or a loudspeaker (per channel).

With respect to the amplification network, the Examiner admits that, at most, Phinney discloses "*a* suitable amplifying apparatus associated with each sound record."

Additionally, the Examiner acknowledges that Phinney does not disclose “the amplifier means being under common control.” Despite this, and without evidentiary support, the Examiner springboards to the conclusion that Phinney discloses “an amplification network.” The Examiner provides no evidence and proffers no basis for why these admittedly singular amplifier elements per signal path constitute “an amplification network.” The fact is they do not. The Examiner essentially ignores this claim recitation and clearly ignores the significance of the claimed invention as a whole. Nowhere does Phinney disclose an amplification network.

This claim element needs to be read in combination with the other claim elements. One significance of the “network” of amplifiers is to enable a common control of the amplifiers relative to one another and to enable this control to be dynamically implemented. The Examiner’s disregard for this interrelationship of the claim elements is legal error and further evidences the impropriety of the Final Rejection and the failure to recognize the significance of the invention as a whole. Phinney does not disclose an amplification network, a plurality of amplifier means under common control or a dynamic control means to provide that control. Thus, the rejection of all claims reciting an “amplification network” over Phinney is legally improper and should be reversed. This includes independent claims 1 and 29, and all dependent claims which depend from one of claims 1 and 29.

Similar arguments apply with respect to the “loudspeaker network.” The Examiner admits that Phinney only “discloses a plurality of loudspeaking devices.” As shown in Phinney, there is one loudspeaker element per signal path. Yet, the Examiner concludes, again without support or even a proffered basis, that this constitutes “a loudspeaker network...” Such is not the case. These individual loudspeakers are not a loudspeaker network. Nor is there any disclosure that these individual loudspeakers are under common control (as recited in some claims) or that they can be. The Examiner provides not even a scintilla of evidence that the loudspeakers constitute a loudspeaker network. Thus, the rejection of all claims reciting a “loudspeaker network” over Phinney is legally improper and should be reversed. This includes independent claims 1 and 29, and all dependent claims which depend from one of claims 1 and 29.

Furthermore, Phinney provides no teaching or suggestion of amplifier or loudspeaker means having multiple amplifier or loudspeaker elements within each channel or customization of the loudspeakers or amplifiers based on the characteristics of the individual sound source associated with the signal path on which those elements are located. Phinney suffers from numerous other deficiencies, some of which are detailed below in connection with specific claims.

Despite all of these (and other) deficiencies in Phinney, the Examiner erroneously declares that “Phinney anticipates all elements of claim 1, except “the amplifier means being under common control” and “a dynamic control means for individually controlling each of the amplifier means to enable automatic simultaneous control over the amplifier means.” As demonstrated herein, this is not the case.

At a minimum, Phinney is devoid of any teaching of separately capturing (or recording) sounds from individual sound sources, an amplification network, a loudspeaker network, a common, automatic and simultaneous dynamic control of the amplifier and/or loudspeaker means within an amplifier and/or loudspeaker network, customization of amplifier networks or loudspeaker networks and other elements of claim 1 and other claims. Because all of the rejections of all claims rely on this legally deficient interpretation of Phinney, all rejections must be reversed.

2. Odom Fails to Remedy the Deficiencies of Phinney, is Non-Analogous Art and is Not Properly Combined with Phinney

To remedy the *admitted* deficiencies of Phinney, the Examiner relies on Odom.^{6/} Specifically, the Examiner alleges that Odom discloses “a sound processor interface that individually controls volume on a plurality of audio channels;” and “the sound processor being suitable for adapting an audio program that frequently changes venue.” This reliance on Odom is legally flawed for at least the following reasons:

- i) Odom is not analogous art and therefore cannot legally be considered in an obviousness rejection;

^{6/} Nowhere does the Examiner allege that Odom remedies the other deficiencies in Phinney noted above.

- ii) The alleged suggestion to combine Odom with Phinney is legally inadequate; and
- iii) Even if combined, Phinney and Odom do not disclose all of the claim elements.

Among other things, Odom does not teach or suggest dynamically controlling individual amplifier or loudspeaker elements. Rather, Odom discloses a system and method for recalling audio setup parameters for a MIDI to analog sound processor interface. Odom addresses the well-known problem that analog musical instruments are difficult to reconfigure once moved. Odom solves this problem by using a MIDI controller to digitally store setup parameters. The parameters are separately processed on separate channels to apply the parameters as inputs to analog instruments. No disclosure of controlling amplifiers or loudspeakers, much less an amplification network or loudspeaker network, is provided. Moreover, as shown, for example, in Figures 2 and 3, the processing is done in sequential bins, not simultaneously. Odom suffers from other deficiencies as well.

a. Odom is Not Analogous Art to the Claimed Invention

Odom is not analogous art to the claimed invention. The only art relevant to a consideration of obviousness is analogous art. *Wang Lab., Inc. v. Toshiba Corp.*, 993 F.2d 858, 864 (Fed. Cir 1993). If a reference is not analogous to the present invention, then it is not prior art, and it cannot be used to defeat the patentability of the claimed invention. Non-analogous art is too remote to constitute prior art. *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992).

Two criteria determine whether a particular reference is analogous art. First, if the reference is within the inventor's field of endeavor, then it is deemed analogous. *Wang*, 993 F.2d at 864; *Clay*, 966 F.2d at 659. Second, if the reference is reasonably pertinent to the particular problem with which the inventor was involved, it is analogous art. *Wang*, 993 F.2d at 864; *Clay*, 966 F.2d at 659. As the Federal Circuit held in *Clay*:

A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem. Thus, the purposes of both the invention and prior art are important in determining whether the reference is reasonably pertinent to the problem the invention attempts to solve. If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem, and that fact supports use of that reference in an obviousness rejection. An inventor may well have been motivated to consider the reference when making his invention. If it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it.

966 F.2d at 659.

The field of endeavor of various ones of the claims relates to providing a system capable of capturing sound from a plurality of individual sound sources and reproducing these sounds separately, without mixing, providing separate amplifiers and/or loudspeakers for each sound source that can be customized based on characteristics of sounds from the source and providing a common dynamic control for these elements, among other things. Among other things, this enables control of individual sounds (micro control) and the overall collection of sounds (macro control), and avoids problems with mixed signals, including masking and limited ability for individual control.

Odom provides an apparatus for automatically recalling audio setup parameters for analog instruments in a MIDI context in an attempt to ease the difficulty involved in setting up and operating analog musical instruments in different venues. Clearly, this is not the same field of endeavor as that of the invention, and it is not even close. Thus, Odom fails the first part of the test for analogous art.

The problems with which the inventor was involved include problems related to masking of signals during playback, inter-modulation distortion associated with playing back mixed signals inability to provide individual customized control over reproduced sounds, and other problems.

In contrast, Odom deals with the problem of setup parameters for analog instruments for different venues in the context of MIDI devices. Thus, Odom is not directed to the same problems with which the inventor was involved. Therefore, Odom also fails the second part of the test for analogous art. Thus, Odom is not analogous art to the present invention and cannot be used to reject the claims. The Examiner's reliance on Odom is legally improper and reversible error. Thus, the rejection of each claim based on Odom is legally improper and must be reversed.

b. There is No Proper Suggestion to Combine Phinney and Odom

Assuming *arguendo* that Odom could legally be considered, there must be a proper suggestion to combine it with Phinney. No such basis exists. To establish a *prima facie* case of obviousness, the Final Rejection must provide an objective motivation to combine the references. It does not.

The Court of Appeals for the Federal Circuit has stated:

[The PTO] can satisfy [the obviousness] burden only by showing some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.

Tec Air Inc. v. Denso Mfg. Michigan, Inc., 53 U.S.P.Q.2d 1294, 1298 (Fed. Cir. 1999)(citing *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988)).⁷¹

“Determination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.” *Crown Operations Int’l, Ltd. V. Solutia Inc.*, 289 F.3d 1367, 1376 (Fed. Cir. 2002) (quoting *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998)). This protection against hindsight is particularly important because there is “a general rule that combination claims can consist of combinations of old elements as well as new elements,” *Clearstream Wastewater Sys. V. Hydro-Action, Inc.*, 206 F.3d 1440, 1446

⁷¹ See also, *In re Fitch*, 23 U.S.P.Q. 1780 (Fed. Cir. 1992); *ACS Hosp. Systems, Inc. v. Montefiore Hosp.*, 221 U.S.P.Q. 929 (Fed. Cir. 1992).

(Fed. Cir. 2000). “[T]he notion . . . that combination claims can be declared invalid merely upon finding similar elements in separate prior patents would necessarily destroy virtually all patents and cannot be the law under the statute, § 103.” *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 665 (Fed. Cir. 2000) (quoting *Panduit Corp.*, 810 F.2d at 1575).

“[V]irtually all [inventions] are combinations of old elements.” Therefore, an examiner [or accused infringer] may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner [or accused infringer] to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention.

....

To counterclaim this potential weakness in the obviousness construct, the suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness.

Yamanouchi Pharm. Co., Ltd. V. Danbury Pharm., Inc., 231 F.3d 1339, 1343 (Fed. Cir. 2000) (quoting *In re Rouffet*, 149 F.3d 1350, 1357-58 (Fed. Cir. 1998)) (internal citations omitted) (emphasis original).

The Final Rejection fails to establish a legally sufficient basis for combining the references, let alone any objective motivation to modify Phinney. The teaching, if any, to combine Phinney and Odom is only found in Appellant’s application. This amounts to impermissible hindsight.

The Examiner admits that Phinney does not disclose a plurality of amplifier means being under common control and dynamic control means for individually controlling each amplifier means to enable automatic simultaneous control over the amplifier means. The Examiner improperly seeks to modify Phinney in light of Odom to overcome these deficiencies. There is no legally proper basis to combine these references.

The Examiner contends that since Phinney discloses the use of a recording and reproducing system in conjunction with a motion picture and because motions pictures are projected in theatres with varying configurations and acoustic characteristics, it would

have been obvious to combine Phinney with Odom's teaching of a sound processor being suitable for adapting an audio program that frequently changes venues to achieve the claimed invention. The Examiner's "reasoning" is legally flawed.

Phinney discloses coordinating sound with a projected image of the orchestra. See Phinney, page 2, lines 115-126. Phinney does not teach or suggest this to adapt to different theatres. So whether or not theatres have varying configurations and acoustic characteristics is irrelevant to Phinney's purpose. Furthermore, Odom does not teach or suggest the use of his invention in movie theatres with varying configurations. The goal of Odom is to enable analog musical equipment to be quickly configured using a MIDI processor. This does not relate to motion pictures or theatres with varying configurations. Simply put, the entire suggestion to combine the two primary references is illogical and legally flawed. Without a proper legal suggestion to combine the two primary references, each of the rejections of each of the claims is legally improper and must be reversed.

3. Even if Combined, Phinney and Odom Do Not Disclose Every Recitation of the Claims

At a minimum, Phinney and Odom are devoid of any teaching of separately capturing (or recording) sounds from individual sound sources, an amplification network, a loudspeaker network, or a common automatic and simultaneous dynamic control of the amplifier and/or loudspeaker means within an amplifier and/or loudspeaker network or customization of loudspeaker or amplifier networks and other elements of claim 1 (and other claims).

For at least these reasons, the rejection of all of the claims based on at least the combination of Phinney and Odom is woefully insufficient to establish a *prima facie* case of obviousness and must be reversed.

B. Independent Claims 1, 29, 30, 108, and 109 are Patentable Over Phinney in View of Odom

Claim 1

Regarding claim 1, the Examiner alleges that Phinney anticipates every claim element except the amplifier means being under common control and a dynamic control means for individually controlling each of the amplifier means to enable automatic simultaneous control over the amplifier means. Beyond these admittedly missing elements, Phinney also fails to disclose at least a “means for separately receiving sounds produced by the plurality of sound source;” “means for converting the separately received sounds...without mixing the audio signals;” “an amplification network comprising a plurality of amplifier means under common control...;” and a loudspeaker network comprising a plurality of loudspeaker means.

The Examiner alleges that Phinney discloses an amplification network comprising a plurality of amplifier means on page 2, lines 101-104. The Examiner has mischaracterized Phinney's teaching of “a suitable amplifying apparatus” connected between each pick-up device and its associated speaker as being an amplification network. This is not a network. Phinney discloses only separate amplifying devices for each audio chamber wherein the amplifying devices have no connection. There is no common control.

With reference to a loudspeaker network comprising a plurality of loudspeaker means, the Examiner recites that Phinney discloses a plurality of loudspeaking devices, each operating under control of a corresponding one of the sound records. This is not a loudspeaker network. As the Examiner acknowledges, Phinney only discloses a plurality of speakers on separate signal paths.

The Examiner relies on Odom to overcome the deficiencies of Phinney regarding amplifier means being under common control and a dynamic control means for individually controlling each of the amplifier means to enable automatic simultaneous control over the amplifier means. However, as described above, Odom relates to a MIDI controller for providing setup parameters to analog audio equipment. A digital processor stores the setup parameters and provides the parameters to a digital-to-analog converter which converts the digital data to analog. A plurality of separate analog parameter conversion circuits then convert the output of the digital-to-analog converter to the appropriate function for the parameter. See Odom, column 3, lines 15-30. At best,

Odom describes providing setup parameters to analog equipment. These parameters are only setup parameters and are not disclosed as being used to control the amplification of each amplification means within an amplification network. Furthermore, processing by the digital processor is not simultaneous, but rather sequential. The processor scans each channel separately and then provides the parameters for each channel (Odom, column 3, lines 41-47). Therefore, Odom does not disclose a dynamic control means for individually controlling each of the amplifier means to enable automatic simultaneous control over the amplifier means.

Even if Odom disclosed all of the elements asserted by the Examiner, Odom still does not make up for the deficiencies of Phinney as described above. Therefore, the combination of Phinney and Odom would not make obvious each and every claimed element. For at least these reasons, claim 1 is patentable over Phinney and Odom.

Claim 29

Claim 29 recites in part an amplification network comprising a plurality of amplifier means under common control, a loudspeaker network comprising a plurality of loudspeaker means, and a dynamic control means for individually controlling each of the amplifier means and individual elements.

The examiner asserts that all elements of claim 29 are “comprehended” by claim 1 except the dynamic control means controlling individual elements of the amplifier means. Therefore, the arguments applied to claim 1 equally apply to claim 29. The truth is, this rejection is deficient at least for the same reasons provided with respect to claim 1.

In addition to the general deficiencies with respect to the Phinney/Odom combination, for example, neither Phinney nor Odom disclosed an amplification network, much less an amplification network comprising a plurality of amplifier means under common control. Nor do either of these references contemplate that separate amplifier means in the separate signal paths can have one or more amplifier elements. Moreover, for reasons similar to those set forth above, neither Phinney nor Odom disclose a dynamic control means for individually controlling each of the amplifier means. The examiner provides no evidence that these references provide a dynamic control means.

Moreover, to the extent the examiner is relying on the analog signal processor of Odom, this fails to also disclose individual control of amplifier means and individual elements of the amplifier means. Moreover, the examiner does not even allege that there is automatic simultaneous control over the amplifier means in Odom. In fact, as pointed out above, Odom provides sequential processing in his MIDI-interface.

For at least these reasons, even if Phinney and Odom are combined (which as demonstrated above would be legally improper), the combination still fails to disclose each element of Claim 29.

Claims 30, 108, and 109

The examiner asserts that the claim elements of claims 30, 108, and 109 are “comprehended by claims” 1 and 29 and that the combination of Phinney and Odom makes obvious all elements of these claims. Since the same grounds for rejection have been applied to these claims, claims 30, 108, and 109 are individually patentable over Phinney and Odom for the reasons applied above to claims 1 and 29.

Among other things, claim 30 recites “separately recording each of the audio signals” and “dynamically individually controlling each of the audio signals...”

At least these claim elements are not disclosed by Phinney or Odom for at least the reasons set forth herein.

Claims 108 and 109 recite “reproducing separately stored audio signals corresponding to sounds produced by a plurality of sound sources...” and “dynamically controlling individually each amplifier means and individual elements to enable automatic and simultaneous control over the amplifier means.” Additionally, Claims 108 and 109 recite “separately supplying each of the audio signals to a loud speaker system. Neither Phinney nor Odom disclosed **separately** supplying *each* of the audio signals to a ***loud speaker system***. Phinney discloses a single loud speaker channel. At least these features are missing in Phinney and Odom.

C. The Tertiary and Other References Do Not Remedy the Deficiencies of Phinney and Odom

For many of the remaining rejections, the Examiner relies on various references in addition to the Phinney/Odom combination. These references will be briefly addressed here, before explaining why the rejections based on them are legally improper.

1. U.S. Patent No. 3,540,545 to Herleman

Herleman is not analogous art because it is neither directed to the same field of endeavor as the invention, nor is it directed to the same problems with which the inventor was involved. Moreover, there is no suggestion to combine Herleman with the base references and, if combined, various elements are still missing.

Herleman discloses an electronic organ for simulating the production of a composite of sounds and providing the output composite sound (*i.e.*, mixed signals) to an integrated speaker system. The organ may have an auxiliary horn speaker attached which may be used to feature brass instrument sounds from the *mixed* signals being applied to the integrated speaker system via a manual on/off switch. Specifically, brass instrument sounds can be highlighted by manually switching to a separate speaker to feature these sounds. Herleman is not within the field of endeavor of the present invention, nor is the disclosure pertinent to the problems addressed by the present invention. Herleman admittedly involves sounds from a mixed audio signal in the context of an electronic organ. This is not the same field of endeavor as the invention, nor does it relate to the identified problems of sound staging, masking, or other problems addressed by the invention. Thus, Herleman is not analogous art. Accordingly, Herleman cannot be relied on in an obviousness rejection. The Examiner's reliance on Herleman in this regard is illegally improper.

Nor is there a proper suggestion to combine Herleman with the base references. Moreover, even if Herleman could be combined with the base references, Herleman does not remedy the deficiencies of Phinney and Odom as detailed with respect to the individual claims addressed below.

2. U.S. Patent No. 4,442,048 to Edwards

Edwards is not analogous art because it is neither directed to the same field of endeavor as the invention, nor is it directed to the same problems with which the inventor was involved. Nor is there a proper suggestion to combine Edwards with Phinney and Odom, and, even if combined, various claim elements are still missing.

Edwards discloses a multi-band equalizer. The equalizer is used to separate frequency bands of a mixed signal. No separate sound sources having amplifiers or loudspeakers for each source is disclosed. The equalizer is used to control the frequency response of the mixed signal, but not to provide dynamic control of individual amplifier elements. This is not the same field of endeavor as the invention, nor does it relate to the identified problems of sound staging, masking, or other problems addressed by the invention. Thus, Edwards is not analogous art.

3. U.S. Patent No. 3,158,695 to Camras

Camras is not analogous art because it is neither directed to the same field of endeavor as the invention, nor is it directed to the same problems with which the inventor was involved. Nor is there a suggestion to combine Camras with Phinney and Odom, and, if combined, various claim elements are still missing.

Camras describes a spatial separation technique for reproducing the sound field of a concert hall in a room with a smaller volume. A combined sound source, such as an orchestra, is picked up by a plurality of microphones arranged in various spatially separated locations around a room. Each spatially separated microphone picks up the combined sounds of the entire orchestra. This is essentially a spatial separation technique with mixed signals. This is not the same field of endeavor as the invention, nor does it relate to the identified problems of sound staging, masking, or other problems addressed by the invention. Thus, Camras is not analogous art.

4. U.S. Patent No. 4,408,095 to Ariga

Ariga is not analogous art because it is neither directed to the same field of endeavor as the invention, nor is it directed to the same problems with which the inventor was involved. Nor is there a suggestion to combine Ariga with Phinney and Odom, and, if combined, various claim elements are still missing.

Ariga describes a system for retrieving frequency components from a mixed stereo signal by filtering left and right channel signals. Left and right channels refer to speaker elements of a speaker system, not separate channels for separate sound sources. Frequency components of the left and right channels are combined, but there is no selective combination of separate audio sound sources, because Ariga does not teach separate sound sources. This too is a spatial separation technique with mixed signals. This is not the same field of endeavor as the invention, nor does it relate to the identified problems of sound staging, masking, or other problems addressed by the invention. Thus, Ariga is not analogous art.

5. U.S. Patent No. 4,481,660 to de Koning

De Koning is not analogous art because it is neither directed to the same field of endeavor as the invention, nor is it directed to the same problems with which the inventor was involved. Nor is there a suggestion to combine De Koning with Phinney and Odom, and, if combined, various claim elements are still missing.

The de Koning patent describes an apparatus for driving transducer units. Various signal sources are connected to an associated amplifier unit. Several auxiliary amplifiers may be connected in parallel with an arbitrary amplifier unit to reduce the total power of the apparatus. This is not the same field of endeavor as the invention, nor does it relate to the identified problems of sound staging, masking, or other problems addressed by the invention. Thus, de Koning is not analogous art.

**D. Claims 56 through 63, 69, 82 through 89, and 95 are Patentable Over
Phinney in View of Odom and Further in View of Herleman**

The rejection of each of these claims should be reversed at least because neither Odom nor Herleman is analogous art and thus cannot legally be considered in an obviousness rejection. Additionally, there is no proper suggestion to combine this tertiary reference with Phinney and Odom. Even if the three references legally could be combined, the combination still fails to disclose all elements of the claims.

**1. Odom and Herleman are Not Analogous Art to the Claimed
Invention**

Since the technology of both Odom and Herleman are not analogous to the present invention, the rejection of claims 56-63, 69, 82-89, and 95 is legally improper.

**2. There is No Suggestion or Motivation to Combine Phinney, Odom,
and Herleman**

The Examiner asserts that it would have been obvious to one skilled in the art to “apply the use of customized loudspeakers as taught by Herleman to the combination made obvious by Phinney and Odom for the purpose of better simulating the sound of a particular instrument.” The Examiner’s reasoning is legally flawed. The goal of Herleman is to project a particular sound out of a mixed signal. One of the Appellant’s goal is to prevent the mixing of signals. Herleman teaches away from Appellant’s invention, which is capturing and reproducing separate audio signals without mixing. Additionally, the invention contemplates a separate loudspeaker system per channel, with each channel corresponding to separate sound sources, and the customization of the loudspeakers based on the sonic characteristics of the sound sources. Herleman does not come close to this. Herleman has a common speaker system for mixed signals and one speaker with an on/off switch for reproducing a portion of the mixed signal. There is simply no suggestion to combine Herleman with the base references.

3. The Combination of Phinney, Odom, and Herleman Does Not
Disclose Every Recitation of the Claims

Claims 56 through 59

The Examiner asserts that the combination of Phinney and Odom make obvious all elements except loudspeaker means customized according to one or more sonic characteristics of the sounds on its signal path and relies on Herleman to overcome this deficiency. Claims 56 depends directly from claim 1 and claims 57-59 depend from claim 56. As described above, the combination of Phinney and Odom do not make obvious all elements of claim 1. Herleman does not overcome the deficiencies of Phinney and Odom. Thus, for at least the dependency on claim 1, claims 56-59 are patentable over Phinney, Odom, and Herleman.

Moreover, with respect to claim 56, Herleman at most discloses one arguably "custom" loudspeaker. The claim recites "each of said loudspeaker means is customized..." At least this recitation is missing from all three references.

Claims 57-59 depend from claim 56 and are patentable for these reasons as well. Moreover, claim 57 recites "at least one sonic characteristic comprises a frequency range." Claim 58 recites "at least one sonic characteristic comprises a directivity pattern..." Claim 59 recites "at least one sonic characteristic comprises a frequency range and a directivity pattern..." These features are separately patentable and not disclosed in the three references.

Claims 60 through 62

Claim 60 recites, among other things, that at least one of the loudspeaker means comprises two or more loudspeaker elements and that the loudspeaker means is customized by selecting loudspeaker elements based on frequency characteristics of the sounds to be reproduced by the loudspeaker means. Claim 61 also recites that at least one of the loudspeaker means comprises two or more loudspeaker elements and further recites customizing loudspeaker elements based on directivity pattern characteristics. Claim 62 recites at least one loudspeaker means comprising two or more loudspeaker elements and customizing the loudspeaker elements based on both frequency

characteristics and directivity patterns. The cited references fail to teach at least these features.

The Examiner appears to be confusing a “loudspeaker means” with the “loudspeaker elements” within a loudspeaker means. Herleman illustrates, in figure 1, two separate speaker devices 14, 18, wherein 14 is a speaker system and 18 is an auxiliary horn speaker. The two separate speakers can be separately actuated by using a foot switch. Herleman makes no disclosure of controlling individual elements within either of the loudspeaker means based on frequency characteristics, directivity, or any other features. At best, Herleman discloses the ability to choose which speaker through which sound will be played. For at least this reason, claims 60-62 are patentable over Phinney, Odom, and Herleman.

Claim 63

Claim 63 recites at least one loudspeaker means comprising two or more loudspeaker elements and the loudspeaker elements being controlled by dynamic control means. As described above, the Examiner has again confused “loudspeaker means” with “loudspeaker elements” within a loudspeaker means. Therefore, claim 63 is patentable for at least the reasons described above in relation to claims 60-62.

Furthermore, Herleman does not disclose a dynamic control means for controlling loudspeaker elements or loudspeaker means. Herleman discloses a foot pedal for selecting which speaker sound should be played through, as desired. The foot pedal is a manual on/off switch for turning on or off the auxiliary horn speaker and is not a dynamic control means. The Examiner asserts that Odom discloses the interchangeability of control by foot pedal, apparently in an attempt to provide some type of motivation to combine Herleman, Odom, and Phinney. However, Odom does not disclose controlling loudspeaker elements. Odom recites in column 3, lines 56-61, as cited by the Examiner, controlling setup parameters through a MIDI interface. At best, Odom describes controlling setup parameters, but no hint or suggestion is provided for dynamically controlling loudspeaker elements within a loudspeaker means. Thus, for at least this reason, claim 63 is patentable over Phinney, Odom, and Herleman.

Claim 69

Claim 69 recites that each amplifier means and loudspeaker means are under common control of the dynamic control means. The Examiner asserts that Phinney and Odom make obvious amplifier means being under common control and dynamic control means. However, as described above in relation to claim 1, Phinney and Odom do not teach or suggest these elements. Furthermore, Phinney and Odom make no teaching or suggestion of dynamic control of loudspeaker means. The Examiner relies on Herleman to overcome this deficiency. Specifically, the Examiner alleges that "Herleman discloses two loudspeaker elements and selection of loudspeaker elements by a foot switch." Again, the Examiner is interchangeably using "loudspeaker means" and "loudspeaker elements", which are separately claimed by Appellant. At best, Herleman discloses selecting, as the Examiner acknowledges, via a manual foot pedal to turn or off an auxiliary horn speaker. No dynamic control is disclosed, much less automatic or simultaneous control.

Furthermore, even if Herleman did disclose dynamic control of loudspeaker means, there is no motivation to combine Herleman with Odom to obtain dynamic control of both amplifier means and loudspeaker means. Herleman makes no disclosure of controlling amplifier elements while Odom makes no disclosure of controlling loudspeaker means. Therefore, for at least these reasons, claim 63 is patentable over Phinney, Odom, and Herleman.

Claims 82-89 and 95

The Examiner asserts that the claim elements of claims 82-89 and 95 are essentially similar to claims 56-63 and 69, respectively. Since the same grounds for rejection have been applied to these claims, claims 82-89 and 95 are individually patentable over Phinney, Odom, and Herleman for at least the reasons applied above.

Claim 82 recites, among other things, that "each of said loudspeaker means is customized..." Claim 83 recites that the at least one sonic characteristic comprises a frequency range. Claim 84 recites that the at least one sonic characteristic comprises a

directivity pattern. Claim 85 recites that at least one sonic characteristic comprises a frequency range and a directivity pattern.

Claim 86 recites at least one loudspeaker means comprising two or more loudspeaker elements and customizing the loudspeaker means by selecting loudspeaker elements based on frequency characteristics. Claim 87 also recites that at least one of the loudspeaker means comprises two or more loudspeaker elements and further recites customizing the loudspeaker means by selecting loudspeaker elements based on directivity pattern characteristics. Claim 88 recites at least one loudspeaker means comprising two or more loudspeaker elements and customizing the loudspeaker means by selecting loudspeaker elements based on both frequency and directivity patterns. Claim 89 recites at least one loudspeaker means comprising two or more elements and the loudspeaker elements are controlled by dynamic control means. Claim 95 recites that each amplifier means and loudspeaker means under common control of the dynamic control means.

At least these claim elements are not disclosed by Phinney, Odom, or Herleman for at least the reasons set forth herein. The general deficiencies of the Phinney/Odom combination set forth above are applicable to these claims as well and those arguments are incorporated herein. Moreover, these claims are separately patentable for containing at least the recitations indicated above.

E. Claims 67, 68, 70 through 77, 93, 94, and 96-103 are Patentable Over Phinney in View of Odom and Further in View of Edwards

Claims 67 and 68

Claim 67 recites, among other things, at least one amplifier means is customized according to one or more sonic characteristic. Claim 68 recites that each of said amplifier means is customized according to one or more sonic characteristics. All of the cited references fail to each at least these features.

The Examiner acknowledges that the combination of Phinney and Odom fails to teach or suggest amplifier means customized according to sonic characteristics of audio signals in a signal path and relies on Edwards to overcome this deficiency. As described

above, Edwards discloses a multi-band equalizer for controlling the frequency response of a mixed signal. The frequency bands referred to by Edwards are part of a composite signal. Further, while Edwards may disclose frequency control bands operating within a certain gain range (column 4, lines 40-45), Edwards does not teach or suggest customizing amplification means based on sonic characteristics of an audio signal on its signal path. Thus, for at least this reason, claims 67 and 68 are patentable over Phinney, Odom, and Edwards.

Claims 70 and 73

Claim 70 recites, among other things, that at least one of the amplifier means comprises more than one amplifier element, while claim 73 recites that at least one of the amplifier means comprises more than one group of amplifiers.

The Examiner correctly acknowledges that the combination of Phinney and Odom fails to teach or suggest at least these features, but erroneously relies on Edwards to overcome this deficiency.

Edwards does not disclose more than one amplifier element or group of amplifier elements within a signal path. The Examiner refers to references 22a-j and 39a-j as amplifier elements in relation to claim 70 and then re-characterizes the same elements as groups of amplifier elements in relation to claim 73. Neither characterization is correct. Operational amplifiers 39a-j form part of a band pass filter and are not used for amplifying audio signals. Thus, for at least this reason, claims 70 and 73 are patentable over Phinney, Odom, and Edwards.

Claims 71 and 74

Claim 71 recites, among other things, more than one amplifier element customized based on characteristics of the audio signals. Claim 74 recites groups of amplifier elements customized based on characteristics of the audio signals. All of the cited references fail to teach or suggest at least those features.

As described above, while Edwards may disclose frequency control bands operating within a certain gain range (column 4, lines 40-45), Edwards does not teach or

suggest customizing amplification means based on characteristics of an audio signal on its signal path. Furthermore, Edwards does not disclose more than one amplifier element or group of amplifier elements within a signal path. The Examiner refers to references 22a-j and 39a-j as amplifier elements in relation to claim 70 and then re-characterizes the same elements as groups of amplifier elements in relation to claim 73. Neither characterization is correct. Operational amplifiers 39a-j form part of a band pass filter and are not used for amplifying audio signals. Thus, for at least these reasons, claims 71 and 74 are patentable over Phinney, Odom, and Edwards.

Claims 72 and 75

Claim 72 recites amplifier elements separately controllable by dynamic control means, while claim 75 recites groups of amplifier elements separately controllable by dynamic control means.

As described above, Edwards discloses a multi-band equalizer for controlling the frequency response of a mixed signal. The frequency bands referred to by Edwards are part of a composite signal. Frequency response is controlled, but not amplification. Furthermore, neither Phinney, Odom, nor Edwards disclose dynamic control over individual amplifier elements. Thus, for at least these reasons, claims 72 and 75 are patentable over Phinney, Odom, and Edwards.

Claims 76 and 77

Claim 76 recites at least one amplifier means comprising more than one amplifier element and customizing the amplifier elements based on characteristics of the audio signals. Claim 76 further discloses that the amplifier elements are separately controllable by the dynamic control means. Claim 77 recites at least one amplifier means comprising more than one group of amplifier elements, and the group of amplifier elements are customized based on characteristics of the audio signals and are separately controllable by dynamic control means.

As described above, while Edwards may disclose frequency control bands operating within a certain gain range (column 4, lines 40-45), Edwards does not teach or

suggest customizing amplification means based on sonic characteristics of an audio signal on its signal path. Furthermore, Edwards does not disclose more than one amplifier element or group of amplifier elements within a signal path. The Examiner refers to references 22a-j and 39a-j as amplifier elements in relation to claim 70 and then re-characterizes the same elements as groups of amplifier elements in relation to claim 73. Neither characterization is correct. Operational amplifiers 39a-j form part of a band pass filter and are not used for amplifying audio signals.

Edwards discloses a multi-band equalizer for controlling the frequency response of a mixed signal. The frequency bands referred to by Edwards are part of a composite signal. Frequency response is controlled, but not amplification. Furthermore, neither Phinney, Odom, nor Edwards disclose dynamic control over individual amplifier elements. Thus, for at least these reasons, claims 76 and 77 are patentable over Phinney, Odom, and Edwards.

Claims 93, 94, and 96 through 103

The examiner asserts that the claim elements of claims 93, 94, and 96-103 are essentially similar to claims 67, 68, and 70-77, respectively. Since the same grounds for rejections have been applied to these claims, claims 93, 94, and 96-103 are individually patentable over Phinney, Odom, and Edwards for the reasons applied above.

Among other things, claim 93 recites at least one amplifier means is customized according to one or more sonic characteristic. Claim 94 recites that each of said amplifier means is customized according to one or more sonic characteristics. Claim 96 recites, among other things, that at least one of the amplifier means comprises more than one amplifier element, while claim 99 recites that at least one of the amplifier means comprises more than one group of amplifiers. Claim 97 recites, among other things, more than one amplifier element customized based on characteristics of the audio signals. Claim 100 recites groups of amplifier elements customized based on characteristics of the audio signals. Claim 98 recites amplifier elements separately controllable by dynamic control means, while claim 101 recites groups of amplifier elements separately controllable by dynamic control means.

Claim 102 recites at least one amplifier means comprising more than one amplifier element and customizing the amplifier elements based on characteristics of the audio signals. Claim 102 further discloses that the amplifier elements are separately controllable by the dynamic control means. Claim 103 recites at least one amplifier means comprising more than one group of amplifier elements, and the group of amplifier elements are customized based on characteristics of the audio signals and are separately controllable by dynamic control means.

At least these claim elements are not disclosed by Phinney, Odom, or Herleman for at least the reasons set forth herein. The general deficiencies of the Phinney/Odom combination set forth above are applicable to these claims as well and those arguments are incorporated herein.

F. Claims 80 and 106 are Patentable over Phinney in View of Odom and Further in View of Edwards and Herleman

Claims 80 and 106 depend directly from claims 1 and 9, respectively. The claims recite, among other things, at least one amplifier means comprising more than one amplifier element and that the amplifier elements are customized based on the characteristics of the audio signals. The claims further recite that each loudspeaker means is customized according to one or more sonic characteristics of the sounds.

The Examiner asserts that the combination of Phinney, Odom, and Edwards make obvious all claim elements except loudspeaker means customized according to one or more sonic characteristics of the sound on its signal path and applies Herleman to overcome this deficiency. The Examiner alleges that it would have been obvious to apply the use of customized loudspeakers as taught by Herleman to the combination made obvious by Phinney, Odom, and Edwards for the purpose of simulating the sound of a particular instrument. However, as described above, the goal of Herleman is to project a particular sound out of a mixed signal. The Appellant's goal is to prevent the mixing of signals. Any combination of Herleman with any other reference teaches away from Appellant's invention, which is capturing and reproducing separate audio signals without mixing. Nor is there a proper suggestion to combine this string of references.

G. Claims 64, 65, 81, 90, 91, and 107 are Patentable over Phinney in View of Odom and Further in View of Camras

Claim 64

Claim 64 depends directly from claim 1. Claim 64 recites, among other things, selectively enabling a user to group together audio signals from two or more sound sources.

Deficiencies of the combination of Phinney and Odom have been described above with reference to claim 1 and these deficiencies apply equally to claim 64. Camras does not overcome these deficiencies. Thus, for at least the reasons provided above with respect to claim 1, claim 64 is patentable over Phinney, Odom, and Camras. Furthermore, Camras does not disclose enabling a user to elect to intentionally group together audio signals from two or more sound sources for playback over a common signal path. Instead, Camras discloses a spatial separation technique. Signals from separate sound sources are not used, rather, as disclosed in column 3 of Camras, a sound source strikes each microphone at a slightly different time. Therefore, the same sound source is captured by a plurality of microphones. Since Camras does not disclose separate sound sources and uses spatial separation, a technique the present invention specifically avoids, claim 64 is patentable over Phinney, Odom, and Camras.

Claim 65

Claim 65 recites, among other things, two or more sound sources separately stored, but intentionally played back over a common signal path.

As described above in reference to claim 64, Camras does not disclose two or more sound patterns recorded on separate channels. Rather, Camras uses spatial separation and a group of microphones each receive the same sound source. Thus, at least for this reason, claim 65 is patentable over Phinney, Odom, and Camras.

Claim 81

Claim 81 recites storing audio signals on a common recording medium. The Examiner alleges the combination of Phinney and Odom makes obvious all elements except the audio signals stored on a common recording medium and relies on Camras to overcome this deficiency. The Examiner further alleges that Camras discloses "recording (i.e., storing) a plurality of unmixed audio signals on the same (i.e., a common) recording medium." The Examiner's characterization of Camras is incorrect. As described above, Camras discloses a spatial separation technique. Signals from separate sound sources are not used, rather, as disclosed in column 3 of Camras, a sound source strikes each microphone at a slightly different time. Therefore, the same sound source is captured by a plurality of microphones. Thus, the output of the microphones are already mixed signals so any sounds recorded from these microphones are mixed signals. Therefore, claim 81 is patentable over Phinney, Odom, and Camras for at least this reason.

Claims 90, 91, and 107

The Examiner asserts that claims 90, 91, and 107 are essentially similar to claims 64, 65, and 81, respectively, and has rejected these claims on the same grounds. Therefore claims 90, 91, and 107 are each individually patentable for the same reasons provided above with respect to claims 64, 65, and 81. Claim 90 recites, among other things, selectively enabling a user to group together audio signals from two or more sound sources. Claim 91 recites among other things, two or more sound sources separately stored, but intentionally played back over a common signal path. Claim 107 recites storing audio signals on a common recording medium. At least these claim features are not disclosed by Phinney, Odom, and/or Camras.

H. Claims 66 and 92 are Patentable over Phinney in View of Odom and Further in View of Ariga

Claims 66 and 92 depend directly from claims 1 and 29, respectively. The claims recite, among other things, that two or more sound sources having similar characteristics may be separately received, converted, and stored, but intentionally mixed during

playback. The Examiner relies on Ariga to teach these features which are admittedly missing from the Phinney/Odom combination. However, Ariga does not make up for this deficiency. Ariga does not disclose two or more sound source. At best, Ariga discloses combining left and right frequency components of a mixed stereo signal. No disclosure is made of separate sound sources. Furthermore, there is no motivation to combine Ariga with Phinney and Odom in order to achieve the present invention. Thus, at least for these reasons, claims 66 and 92 are patentable over Phinney, Odom, and Ariga.

I. Claims 78, 79, 104, and 105 are Patentable over Phinney in View of Odom and Further in View of de Koning

Claims 78 and 79 each depend directly from claim 1 while claims 104 and 105 each depend directly from claim 29. Claims 78 and 104 recite, among other things, that at least one amplifier means comprises “more than one amplifier element” and controlling the amplifier means by “selectively turning on or off individual amplifier elements”. Claims 79 and 105 recite, among other things, that at least one amplifier means comprises “more than one group of amplifier elements” and dynamically controlling the amplifier means by “selectively turning on or off individual groups of amplifier elements or individual amplifier elements within a group”.

The Examiner admits that the combination of Phinney and Odom fail to teach these features and relies on de Koning to overcome this deficiency. However, de Koning does not disclose an amplifier network having amplifier means in separate signal paths. Rather, de Koning illustrates, in figure 3, one signal path feeding an amplifier 3.1 as well as auxiliary amplifiers 6.1-6.k. In essence, a matrix is provided for arbitrarily choosing an amplifier. The amplifiers are switched to control the system power, not for customizing amplification on a single channel. Thus, for at least this reason, claims 78, 79, 104, and 105 are patentable over Phinney, Odom, and de Koning.

X. CONCLUSION

In view of the foregoing, Appellant respectfully requests that the Board reverse the prior art rejections set forth in the Office Action dated May 10, 2004, and allow all of the pending claims.

Respectfully submitted,

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APPENDIX A

APPENDIX A

1. (Previously Presented) A sound system for capturing and reproducing sounds produced by a plurality of sound sources, comprising:

means for separately receiving sounds produced by the plurality of sound sources;

means for converting the separately received sounds to a plurality of separate audio signals without mixing the audio signals;

means for separately storing the plurality of separate audio signals without mixing the audio signals;

means for separately retrieving over separate signal paths the stored audio signals;

an amplification network comprising a plurality of amplifier means under common control, with separate amplifier means in the separate signal paths for separately amplifying each of the separate audio signals, each of the amplifier means comprising one or more amplifier elements;

a loudspeaker network comprising a plurality of loudspeaker means, with separate loudspeaker means in the separate signal paths for reproducing the separately amplified audio signals; and

a dynamic control means for individually controlling each of the amplifier means to enable automatic simultaneous control over the amplifier means.

2 – 28. (Cancelled)

29. (Previously Presented) A system for reproducing separately stored audio signals corresponding to sounds produced by a plurality of sound sources, comprising:

means for separately retrieving over separate signal paths the stored audio signals;
an amplification network comprising a plurality of amplifier means under common control, with separate amplifier means in the separate signal paths for separately amplifying each of the separate audio signals, each of the amplifier means comprising one or more amplifier elements;

a loudspeaker network comprising a plurality of loudspeaker means, with separate loudspeaker means in the separate signal paths for reproducing the separately amplified audio signals; and

a dynamic control means for individually controlling each of the amplifier means and individual elements of the amplifier means to enable automatic simultaneous control over the amplifier means.

30. (Previously Presented) A method of recording and reproducing sound comprising the steps of:

capturing a plurality of sounds from a plurality of sound sources;
converting each of the plurality of sounds to an audio signal;
separately recording each of the audio signals;
separately retrieving each of the audio signals;
separately supplying each of the audio signals to a loudspeaker system to reproduce the original plurality of sounds; and
dynamically individually controlling each of the audio signals to enable automatic simultaneous control over the audio signals.

31 – 55. (Cancelled)

56. (Previously Presented) The sound system of claim 1, wherein the sound sources produce sounds having different sonic characteristics and each of said loudspeaker means is customized according to one or more sonic characteristic of the sounds corresponding to the audio signals on its signal path.

57. (Previously Presented) The sound system of claim 56 wherein the at least one sonic characteristic comprises a frequency range of the sounds produced by the corresponding sound source.

58. (Previously Presented) The sound system of claim 56 wherein the at least one sonic characteristic comprises a directivity pattern of the sounds produced by the corresponding sound source.

59. (Previously Presented) The sound system of claim 56 wherein the at least one sonic characteristic comprises a frequency range and a directivity pattern of the sounds produced by the corresponding sound source.

60. (Previously Presented) The sound system of claim 56, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes selecting loudspeaker elements based on frequency characteristics of the sounds to be reproduced by the at least one loudspeaker means.

61. (Previously Presented) The sound system of claim 56, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes arranging loudspeaker elements based on directivity pattern characteristics of the sounds to be reproduced by the at least one loudspeaker means.

62. (Previously Presented) The sound system of claim 56, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes selecting loudspeaker elements based on frequency characteristics of the sounds to be reproduced by the at least one loudspeaker means and arranging loudspeaker elements based on directivity pattern characteristics of the sounds to be reproduced by the at least one loudspeaker means.

63. (Previously Presented) The sound system of claim 1, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements and the loudspeaker elements are controlled by the dynamic control means.

64. (Previously Presented) The sound system of claim 1 further comprising means for selectively enabling a user to elect to intentionally group together audio signals from two or more sound sources for playback over a common signal path.

65. (Currently Amended) The sound system of claim 1 wherein sounds from two or more sound sources may be separately stored but intentionally played back over a common signal path.

66. (Previously Presented) The sound system of claim 1 wherein the sound sources produce sounds having sonic characteristics and wherein two or more sound sources having similar characteristics may be separately received, converted and stored but intentionally mixed together during playback and passed through a common loudspeaker means.

67. (Currently Amended) The sound system of claim 1 wherein the sound sources produce sounds having different sonic characteristics and at least one of said ~~amplification~~ amplifier means is customized according to one or more sonic characteristics of the sounds corresponding to the audio signals on its signal path.

68. (Previously Presented) The sound system of claim 1 wherein the sound sources produce sounds having different sonic characteristics and each of said amplifier means is customized according to one or more sonic characteristics of the sounds corresponding to the audio signals on its signal path.

69. (Previously Presented) The sound system of claim 1 wherein each of the amplifier means and loudspeaker means are under common control of the dynamic control means.

70. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path.

71. (Previously Presented) The sound system of claim 70 wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means.

72. (Currently Amended) The sound system of claim 70 wherein the amplifier elements are separately controllable by the dynamic ~~controller~~ control means.

73. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means, comprises more than one group of amplifier elements.

74. (Previously Presented) The sound system of claim 73 wherein the groups of amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means.

75. (Previously Presented) The sound system of claim 73 wherein the groups of amplifier elements are separately controllable by the dynamic control means.

76. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path, wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be

amplified by the at least one amplifier means and the amplifier elements are separately controllable by the dynamic control means.

77. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means, comprises more than one group of amplifier elements, the groups of amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the groups of amplifier elements are separately controllable by the dynamic control means.

78. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means comprises more than one amplifier element and the dynamic control means controls the amplifier means by selectively turning on or off individual amplifier elements.

79. (Currently Amended) The sound system of claim 1, wherein at least one of the amplifier means comprises more than one group of amplifier elements and the dynamic control means controls the amplifier means by selectively turning on or off individual groups of amplifier elements or individual amplifier elements within a group.

80. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path, wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the amplifier elements are separately controllable by the dynamic control means and wherein the sound sources produce sounds

having different sonic characteristics and each of said loudspeaker means is customized according to one or more sonic characteristic of the sounds corresponding to the audio signals on its signal path.

81. (Previously Presented) The sound system of claim 1 wherein the audio signals are stored on a common recording medium.

82. (Previously Presented) The sound system of claim 29, wherein the sound sources produce sounds having different sonic characteristics and each of said loudspeaker means is customized according to one or more sonic characteristic of the sounds corresponding to the audio signals on its signal path.

83. (Previously Presented) The sound system of claim 82 wherein the at least one sonic characteristic comprises a frequency range of the sounds produced by the corresponding sound source.

84. (Previously Presented) The sound system of claim 82 wherein the at least one sonic characteristic comprises a directivity pattern of the sounds produced by the corresponding sound source.

85. (Previously Presented) The sound system of claim 82 wherein the at least one sonic characteristic comprises a frequency range and a directivity pattern of the sounds produced by the corresponding sound source.

86. (Previously Presented) The sound system of claim 82, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes selecting loudspeaker elements based on frequency characteristics of the sounds to be reproduced by the at least one loudspeaker means.

87. (Previously Presented) The sound system of claim 82, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes arranging loudspeaker elements based on directivity pattern characteristics of the sounds to be reproduced by the at least one loudspeaker means

88. (Previously Presented) The sound system of claim 82, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes selecting loudspeaker elements based on frequency characteristics of the sounds to be reproduced by the at least one loudspeaker means and arranging loudspeaker elements based on directivity pattern characteristics of the sounds to be reproduced by the at least one loudspeaker means.

89. (Currently Amended) The sound system of claim 82, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements and the loudspeaker elements are controlled by the dynamic ~~controller~~ control means.

90. (Previously Presented) The sound system of claim 29 further comprising means for selectively enabling a user to elect to intentionally group together audio signals from two or more sound sources for playback over a common signal path.

91. (Currently Amended) The sound system of claim 29 wherein sounds from two or more sound sources may be separately stored but intentionally played back over a common signal path.

92. (Currently Amended) The sound system of claim 29 wherein the sound sources produce sounds having sonic characteristics and wherein sounds from two or more sound sources having similar characteristics may be separately received, converted and stored but intentionally mixed together during playback and passed through a common loudspeaker means.

93. (Previously Presented) The sound system of claim 29 wherein the sound sources produce sounds having different sonic characteristics and at least one of said amplifier means is customized according to one or more sonic characteristics of the sounds corresponding to the audio signals on its signal path.

94. (Previously Presented) The sound system of claim 29 wherein the sound sources produce sounds having different sonic characteristics and each of said amplifier means is customized according to one or more sonic characteristic of the sounds corresponding to the audio signals on its signal path.

95. (Previously Presented) The sound system of claim 29 wherein each of the amplifier means and loudspeaker means are under common control of the dynamic control means.

96. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path.

97. (Previously Presented) The sound system of claim 96 wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means.

98. (Previously Presented) The sound system of claim 96 wherein the amplifier elements are separately controllable by the dynamic control means.

99. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means, comprises more than one group of amplifier elements.

100. (Previously Presented) The sound system of claim 99 wherein the groups of amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means.

101. (Previously Presented) The sound system of claim 99 wherein the groups of amplifier elements are separately controllable by the dynamic control means.

102. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path, wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the amplifier elements are separately controllable by the dynamic control means.

103. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means, comprises more than one group of amplifier elements, the groups of amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the groups of amplifier elements are separately controllable by the dynamic control means.

104. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means comprises more than one amplifier element and the dynamic control means controls the at least one amplifier means by selectively turning on or off individual amplifier elements.

105. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means comprises more than one group of amplifier elements and the dynamic control means controls the at least one amplifier means by selectively turning on or off individual groups of amplifier elements or individual amplifier elements within a group.

106. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path, wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the amplifier elements are separately controllable by the dynamic control means and wherein the sound sources produce sounds having different sonic characteristics and each of said loudspeaker means is customized according to one or more sonic characteristic of the sounds corresponding to the audio signals on its signal path.

107. (Previously Presented) The sound system of claim 29 wherein the audio signals are stored on a common recording medium.

108. (Currently Amended) A method of reproducing separately stored audio signals corresponding to sounds produced by a plurality of sound sources, the method comprising the steps of:

separately retrieving each of the audio signals;

separately amplifying each of the ~~plurality of~~ audio signals with separate amplifier means for each of the separately retrieved audio signals;

separately supplying each of the audio signals to a loudspeaker system to reproduce the original ~~plurality of~~ sounds produced by the plurality of sound sources; and

dynamically controlling individually each of the amplifier means and individual elements of the amplifier means to enable automatic simultaneous control over the amplifier means.

109. (Currently Amended) A method of reproducing separately received audio signals corresponding to sounds produced by a plurality of sound sources, the method comprising the steps of:

separately amplifying each of the ~~plurality~~ of audio signals with separate amplifier means;

separately supplying each of the audio signals to a loudspeaker system to reproduce the original ~~plurality of~~ sounds produced by the plurality of sound sources; and

dynamically controlling individually each of the amplifier means and individual elements of the amplifier means to enable automatic simultaneous control over the amplifier means.

APPENDIX A1

APPENDIX A1

1. (Previously Presented) A sound system for capturing and reproducing sounds produced by a plurality of sound sources, comprising:

means for separately receiving sounds produced by the plurality of sound sources;

means for converting the separately received sounds to a plurality of separate audio signals without mixing the audio signals;

means for separately storing the plurality of separate audio signals without mixing the audio signals;

means for separately retrieving over separate signal paths the stored audio signals;

an amplification network comprising a plurality of amplifier means under common control, with separate amplifier means in the separate signal paths for separately amplifying each of the separate audio signals, each of the amplifier means comprising one or more amplifier elements;

a loudspeaker network comprising a plurality of loudspeaker means, with separate loudspeaker means in the separate signal paths for reproducing the separately amplified audio signals; and

a dynamic control means for individually controlling each of the amplifier means to enable automatic simultaneous control over the amplifier means.

2 – 28. (Cancelled)

29. (Previously Presented) A system for reproducing separately stored audio signals corresponding to sounds produced by a plurality of sound sources, comprising:

means for separately retrieving over separate signal paths the stored audio signals;
an amplification network comprising a plurality of amplifier means under common control, with separate amplifier means in the separate signal paths for separately amplifying each of the separate audio signals, each of the amplifier means comprising one or more amplifier elements;

a loudspeaker network comprising a plurality of loudspeaker means, with separate loudspeaker means in the separate signal paths for reproducing the separately amplified audio signals; and

a dynamic control means for individually controlling each of the amplifier means and individual elements of the amplifier means to enable automatic simultaneous control over the amplifier means.

30. (Previously Presented) A method of recording and reproducing sound comprising the steps of:

capturing a plurality of sounds from a plurality of sound sources;
converting each of the plurality of sounds to an audio signal;
separately recording each of the audio signals;
separately retrieving each of the audio signals;
separately supplying each of the audio signals to a loudspeaker system to reproduce the original plurality of sounds; and
dynamically individually controlling each of the audio signals to enable automatic simultaneous control over the audio signals.

31 – 55. (Cancelled)

56. (Previously Presented) The sound system of claim 1, wherein the sound sources produce sounds having different sonic characteristics and each of said loudspeaker means is customized according to one or more sonic characteristic of the sounds corresponding to the audio signals on its signal path.

57. (Previously Presented) The sound system of claim 56 wherein the at least one sonic characteristic comprises a frequency range of the sounds produced by the corresponding sound source.

58. (Previously Presented) The sound system of claim 56 wherein the at least one sonic characteristic comprises a directivity pattern of the sounds produced by the corresponding sound source.

59. (Previously Presented) The sound system of claim 56 wherein the at least one sonic characteristic comprises a frequency range and a directivity pattern of the sounds produced by the corresponding sound source.

60. (Previously Presented) The sound system of claim 56, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes selecting loudspeaker elements based on frequency characteristics of the sounds to be reproduced by the at least one loudspeaker means.

61. (Previously Presented) The sound system of claim 56, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes arranging loudspeaker elements based on directivity pattern characteristics of the sounds to be reproduced by the at least one loudspeaker means.

62. (Previously Presented) The sound system of claim 56, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes selecting loudspeaker elements based on frequency characteristics of the sounds to be reproduced by the at least one loudspeaker means and arranging loudspeaker elements based on directivity pattern characteristics of the sounds to be reproduced by the at least one loudspeaker means.

63. (Previously Presented) The sound system of claim 1, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements and the loudspeaker elements are controlled by the dynamic control means.

64. (Previously Presented) The sound system of claim 1 further comprising means for selectively enabling a user to elect to intentionally group together audio signals from two or more sound sources for playback over a common signal path.

65. (Previously Presented) The sound system of claim 1 wherein two or more sound sources may be separately stored but intentionally played back over a common signal path.

66. (Previously Presented) The sound system of claim 1 wherein the sound sources produce sounds having sonic characteristics and wherein two or more sound sources having similar characteristics may be separately received, converted and stored but intentionally mixed together during playback and passed through a common loudspeaker means.

67. (Previously Presented) The sound system of claim 1 wherein the sound sources produce sounds having different sonic characteristics and at least one of said amplification means is customized according to one or more sonic characteristics of the sounds corresponding to the audio signals on its signal path.

68. (Previously Presented) The sound system of claim 1 wherein the sound sources produce sounds having different sonic characteristics and each of said amplifier means is customized according to one or more sonic characteristics of the sounds corresponding to the audio signals on its signal path.

69. (Previously Presented) The sound system of claim 1 wherein each of the amplifier means and loudspeaker means are under common control of the dynamic control means.

70. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path.

71. (Previously Presented) The sound system of claim 70 wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means.

72. (Previously Presented) The sound system of claim 70 wherein the amplifier elements are separately controllable by the dynamic controller.

73. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means, comprises more than one group of amplifier elements.

74. (Previously Presented) The sound system of claim 73 wherein the groups of amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means.

75. (Previously Presented) The sound system of claim 73 wherein the groups of amplifier elements are separately controllable by the dynamic control means.

76. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path, wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the amplifier elements are separately controllable by the dynamic control means.

77. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means, comprises more than one group of amplifier elements, the groups of amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the groups of amplifier elements are separately controllable by the dynamic control means.

78. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means comprises more than one amplifier element and the dynamic control means controls the amplifier means by selectively turning on or off individual amplifier elements.

79. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means comprises more than one group of amplifier element and the dynamic control means controls the amplifier means by selectively turning on or off individual groups of amplifier elements or individual amplifier elements within a group.

80. (Previously Presented) The sound system of claim 1, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path, wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the amplifier elements are separately controllable by the dynamic control means and wherein the sound sources produce sounds having different sonic characteristics and each of said loudspeaker means is customized according to one or more sonic characteristic of the sounds corresponding to the audio signals on its signal path.

81. (Previously Presented) The sound system of claim 1 wherein the audio signals are stored on a common recording medium.

82. (Previously Presented) The sound system of claim 29, wherein the sound sources produce sounds having different sonic characteristics and each of said loudspeaker means is customized according to one or more sonic characteristic of the sounds corresponding to the audio signals on its signal path.

83. (Previously Presented) The sound system of claim 82 wherein the at least one sonic characteristic comprises a frequency range of the sounds produced by the corresponding sound source.

84. (Previously Presented) The sound system of claim 82 wherein the at least one sonic characteristic comprises a directivity pattern of the sounds produced by the corresponding sound source.

85. (Previously Presented) The sound system of claim 82 wherein the at least one sonic characteristic comprises a frequency range and a directivity pattern of the sounds produced by the corresponding sound source.

86. (Previously Presented) The sound system of claim 82, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at

least one loudspeaker means includes selecting loudspeaker elements based on frequency characteristics of the sounds to be reproduced by the at least one loudspeaker means.

87. (Previously Presented) The sound system of claim 82, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes arranging loudspeaker elements based on directivity pattern characteristics of the sounds to be reproduced by the at least one loudspeaker means

88. (Previously Presented) The sound system of claim 82, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements, and customization of the at least one loudspeaker means includes selecting loudspeaker elements based on frequency characteristics of the sounds to be reproduced by the at least one loudspeaker means and arranging loudspeaker elements based on directivity pattern characteristics of the sounds to be reproduced by the at least one loudspeaker means.

89. (Previously Presented) The sound system of claim 82, wherein at least one of the loudspeaker means comprises two or more loudspeaker elements and the loudspeaker elements are controlled by the dynamic controller.

90. (Previously Presented) The sound system of claim 29 further comprising means for selectively enabling a user to elect to intentionally group together audio signals from two or more sound sources for playback over a common signal path.

91. (Previously Presented) The sound system of claim 29 wherein two or more sound sources may be separately stored but intentionally played back over a common signal path.

92. (Previously Presented) The sound system of claim 29 wherein the sound sources produce sounds having sonic characteristics and wherein two or more sound sources having similar characteristics may be separately received, converted and stored but intentionally mixed together during playback and passed through a common loudspeaker means.

93. (Previously Presented) The sound system of claim 29 wherein the sound sources produce sounds having different sonic characteristics and at least one of said amplifier means is customized according to one or more sonic characteristics of the sounds corresponding to the audio signals on its signal path.

94. (Previously Presented) The sound system of claim 29 wherein the sound sources produce sounds having different sonic characteristics and each of said amplifier means is customized according to one or more sonic characteristic of the sounds corresponding to the audio signals on its signal path.

95. (Previously Presented) The sound system of claim 29 wherein each of the amplifier means and loudspeaker means are under common control of the dynamic control means.

96. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path.

97. (Previously Presented) The sound system of claim 96 wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means.

98. (Previously Presented) The sound system of claim 96 wherein the amplifier elements are separately controllable by the dynamic control means.

99. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means, comprises more than one group of amplifier elements.

100. (Previously Presented) The sound system of claim 99 wherein the groups of amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means.

101. (Previously Presented) The sound system of claim 99 wherein the groups of amplifier elements are separately controllable by the dynamic control means.

102. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path, wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the amplifier elements are separately controllable by the dynamic control means.

103. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means, comprises more than one group of amplifier elements, the groups of amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the groups of amplifier elements are separately controllable by the dynamic control means.

104. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means comprises more than one amplifier element and the dynamic control means controls the at least one amplifier means by selectively turning on or off individual amplifier elements.

105. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means comprises more than one group of amplifier elements and the dynamic control means controls the at least one amplifier means by selectively turning on or off individual groups of amplifier elements or individual amplifier elements within a group.

106. (Previously Presented) The sound system of claim 29, wherein at least one of the amplifier means comprises more than one amplifier element in a signal path, wherein the more than one amplifier elements are customized based on characteristics of the audio signals to be amplified by the at least one amplifier means and the amplifier elements are separately controllable by the dynamic control means and wherein the sound sources produce sounds having different sonic characteristics and each of said loudspeaker means is customized

according to one or more sonic characteristic of the sounds corresponding to the audio signals on its signal path.

107. (Previously Presented) The sound system of claim 29 wherein the audio signals are stored on a common recording medium.

108. (Previously Presented) A method of reproducing separately stored audio signals corresponding to sounds produced by a plurality of sound sources, the method comprising the steps of:

separately retrieving each of the audio signals;

separately amplifying each of the plurality of audio signals;

separately supplying each of the audio signals to a loudspeaker system to reproduce the original plurality of sounds; and

dynamically controlling individually each of the amplifier means and individual elements of the amplifier means to enable automatic simultaneous control over the amplifier means.

109. (Previously Presented) A method of reproducing separately received audio signals corresponding to sounds produced by a plurality of sound sources, the method comprising the steps of:

separately amplifying each of the plurality of audio signals;

separately supplying each of the audio signals to a loudspeaker system to reproduce the original plurality of sounds; and

dynamically controlling individually each of the amplifier means and individual elements of the amplifier means to enable automatic simultaneous control over the amplifier means.